ABSTRACT OF THE DISCLOSURE

Low nanosized combusted products are obtained by introducing at least one volatile metal compound into the flame of a non-premixed, multi-element diffusion flame burner which exhibits a one-dimensional temperature profile. The combustion process generates a stable environment favoring formation of very small particles of uniform composition. Adjusting burner stoichiometry enables production of zero valent metal powders and metal compounds of low or intermediate oxidation states as well as the usual more highly oxidized species.